Data Sheet
Graphics ESPRIMO Desktop PC

Fujitsu PCs can be used for all office applications. To fulfill the demands of graphics demanding application, ESPRIMO PCs are orderable with either graphics on board or graphics, plugged into a PCI slot.

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General

Fujitsu offers for their ESPRIMO PCs different suppliers for graphics controllers, which are selected seriously. Parameters like quality, availability and experiences play an important role.

The ESPRIMO PCs feature on board graphics within their chipsets. However, a range of graphics subsystems are available.

	NVIDIA Quadro NVS 290 256MB PCIe x16
Description	Low Profile PCI Express x16 - graphics controller card
Field of application	Professional 2D and 3D office text and graphics display applications, DVI dual display applications, beamer presentation, Hardware prepared for picture and videorecording and editing for i.e. Internet presentations. Displaying of HDCP encrypted videos in full resolution.
Mainboard interface	PCI Express x16 mechanical
TV Interfaces	-
Connectors on graphic-board	1*DMS 59 (15pin VGA with included DVI/VGA-converter)
Connectors after LFH-splittercable	2*DVI-I. (15pin VGA by using included DVI/VGA-converter)
Shipped adapters	1*LFH59 Splitter cable + 2*DVI/VGA converters
Possible monitor combinations	Single/Dual VGA/DVI-D/DVI-A/DVI-I in every combination possible on each output
Dual RAMDAC	each 400MHz
Electrical power consumption	15W - 21W
Technical specification	Local Frame Buffer: 256MB, mounted on graphics board Graphics processor: 459 MHz Core Frequency Memory Frequency: 400 MHz (=DDR-rate 800), 64bit memory interface Full DX10 compliant HDCP support (High Bandwidth Digital Content Protection) at all digital connectors Turbo Cache: enabled
Operating systems	Windows 2000, Windows XP 32bit/ 64bit, Windows VISTA 32bit/ 64bit, Windows 7 32bit/ 64bit
Dimensions (W x D in mm)	168 x 65
Cooling solution	fanless (heatsink)
Approvals	CE, FCC Class B, EN55022, EN55024, EN60950
Driver certification	Windows XP 32-bit, Windows XP 64-bit, Windows Vista 32-bit, Windows Vista 64-bit, Windows 7 32-bit, Windows 7 64-bit
Mainboard onboard graphic	DISABLED when using graphics card in main graphic slot
	All resolutions dependent on display type 4:3 or 16:9 (additional resolutions possible depending on monitor edid data) Colordepth [bit/pixel]: 8/16/32

Resolutions / Display types	**Resolutions**		**Display type:**	
			4:3 or 5:4	**16:9 or 16:10**
	640x480, 720x480, 720x576, 800x600	x	x	-
	848x480, 960x600	x	-	x
	1024x768	x	x	-
	1088x612	x	-	x
	1152x864	x	x	-
	1280x720, 1280x768, 1280x800	x	-	x
	1280x960, 1280x1024	x	x	-
	1360x768, 1440x900, 1600x900, 1600x1024	x	-	x
	1600x1200	x	x	-
	1680x1050, 1920x1080, 1920x1200	x	-	x
	1920x1440 (only analog)	x	x	-
	2048x1536 (only analog)	x	x	-
		-	-	-

	NVIDIA Quadro NVS 300 512MB PCIe x16
Description	Low Profile PCI Express x16 - graphics controller card
Field of application	Professional 2D and 3D office text and graphics display applications, DVI dual display applications, beamer presentation, Hardware prepared for picture and videorecording and editing for i.e. Internet presentations. Displaying of HDCP encrypted videos in full resolution.
Mainboard interface	PCI Express x16 mechanical
TV Interfaces	-
Connectors on graphic-board	1*DMS 59
Connectors after LFH-splittercable	2*DVI-I (15pin VGA possible by using optional DVI/VGA-converters) or 2*Display Port
Shipped adapters	LFH-splitter cable must be ordered separately DVI/VGA-converters must be ordered separately
Possible monitor combinations	With DMS 59 to DVI-I splitter cable: Single/Dual VGA/DVI-D/DVI-A/DVI-I in every combination possible on each output. With DMS 59 to DP splitter cable: only digital connections are possible. Combination with DP/DVI-D adapter cable possible.
Dual RAMDAC	each 400MHz
Electrical power consumption	5W - 14W
Technical specification	Local Frame Buffer: 512MB, mounted on graphics board Graphics processor: 520 MHz Core Frequency Memory Frequency: 790 MHz, 64bit memory interface Full DX10.1 compliant HDCP support (High Bandwidth Digital Content Protection) at all digital connectors
Operating systems	Windows XP 32bit/ 64bit, Windows VISTA 32bit/ 64bit, Windows 7 32bit/ 64bit
Dimensions (W x D in mm)	145 x 65
Cooling solution	fanless (heatsink)
Approvals	CE, FCC Class B, EN55022, EN55024, EN60950
Driver certification	Windows XP 32-bit, Windows XP 64-bit, Windows Vista 32-bit, Windows Vista 64-bit, Windows 7 32-bit, Windows 7 64-bit
Mainboard onboard graphic	DISABLED when using graphics card in main graphic slot
	All resolutions dependent on display type 4:3 or 16:9 (additional resolutions possible depending on monitor edid data) Colordepth [bit/pixel]: 8/16/32

Resolutions / Display types

Resolutions		Display type: 4:3 or 5:4	Display type: 16:9 or 16:10
640x480, 720x480, 720x576, 800x600	x	x	-
848x480, 960x600	x	-	x
1024x768	x	x	-
1088x612	x	-	x
1152x864	x	x	-
1280x720, 1280x768, 1280x800	x	-	x
1280x960, 1280x1024	x	x	-
1360x768, 1440x900, 1600x900, 1600x1024	x	-	x
1600x1200	x	x	-
1680x1050, 1920x1080, 1920x1200	x	-	x
1920x1440 (only analog)	x	x	-
2048x1536 (only analog)	x	x	-
2560x1440 (only DP)	x	-	x
2560x1600 (only DP)	x	-	x

	ATI Radeon HD5450 512 MB
Description	PCI Express x16 - graphics controller card
Field of application	DX11 gaming support with entry level performance. Smooth playing up to 1024x768 resolution possible. 2D and 3D office text and graphics display applications, TV projector, beamer presentation, picture and videorecording and editing for i.e. Internet presentations. Displaying of HDCP encrypted videos in full resolution.
Mainboard interface	PCI Express x16 mechanical
TV Interfaces	-
Connectors on graphic-board	2*DVI-I(1*Singlelink + 1*Duallink). (15pin VGA by using DVI/VGA-converter)
Connectors after LFH-splittercable	-
Shipped adapters	-
Possible monitor combinations	Single/Dual VGA/DVI-D/DVI-A/DVI-I in every combination possible on each output
Dual RAMDAC	each 400MHz
Electrical power consumption	9W - 15W
Technical specification	Local Frame Buffer: 512MB DDR3, mounted on graphics board Graphics processor: 650 MHz Core Frequency Memory Frequency: 800 MHz (=DDR-rate 1600MHz), 64bit memory interface Full DX11 compliant HDCP support (High Bandwidth Digital Content Protection) at all digital connectors
Operating systems	Windows XP 32bit/ 64bit, Windows VISTA 32bit/ 64bit, Windows 7 32bit/ 64bit
Dimensions (W x D in mm)	168 x 106
Cooling solution	fanless (heatsink)
Approvals	CE, FCC Class B, EN55022, EN55024, EN60950
Driver certification	Windows XP 32-bit, Windows XP 64-bit, Windows Vista 32-bit, Windows Vista 64-bit, Windows 7 32-bit, Windows 7 64-bit
Mainboard onboard graphic	DISABLED when using graphics card in main graphic slot
	All resolutions dependent on display type 4:3 or 16:9 (additional resolutions possible depending on monitor edid data) Colordepth [bit/pixel]: 32

Resolutions / Display types

Resolutions		Display type:	
		4:3 or 5:4	16:9 or 16:10
640x480, 720x480, 720x576, 800x600	x	x	-
848x480, 960x600	x	-	x
1024x768	x	x	-
1088x612	x	-	x
1152x864	x	x	-
1280x720, 1280x768, 1280x800	x	-	x
1280x960, 1280x1024	x	x	-
1360x768, 1440x900, 1600x900, 1600x1024	x	-	x
1600x1200	x	x	-
1680x1050, 1920x1080, 1920x1200	x	-	x
1920x1440 (only analog)	x	x	-
2048x1536 (only analog)	x	x	-
2560x1440 (only one DVI-D)	x	-	x
2560x1600 (only one DVI-D)	x	-	x

	NVIDIA GeForce GT420 DisplayPort 1GB LP
Description	Low Profile PCI Express x16 - graphics controller card
Field of application	DX11 gaming support with midrange performance. Smooth playing up to 1680x1050 resolution possible. 2D and 3D office text and graphics display applications, TV projector, beamer presentation, picture and videorecording and editing for i.e. Internet presentations. Displaying of HDCP encrypted videos in full resolution.
Mainboard interface	PCI Express x16 mechanical
TV Interfaces	HDMI possible via DVI to HDMI converter (optional)
Connectors on graphic-board	1*DVI-I duallink, 1*DP
Connectors after LFH-splittercable	-
Shipped adapters	1*DVI/VGA converter
Possible monitor combinations	DP, DVI-I => dual monitor support; VGA possible over the DVI-I interface via DVI to VGA adapter (bundled); 2nd DVI via DP to DVI adapter cable (optional)
Dual RAMDAC	each 400MHz
Electrical power consumption	7W - 30Wmax (depending on graphic load)
Technical specification	Local Frame Buffer: 1GB DDR3, mounted on graphics board Graphics processor: 700 MHz Core Frequency Memory Frequency: 800 MHz (=DDR-rate 1600MHz), 128bit memory interface Full DX11 compliant HDCP support (High Bandwidth Digital Content Protection) at all digital connectors
Operating systems	Windows XP 32bit/ 64bit, Windows VISTA 32bit/ 64bit, Windows 7 32bit/ 64bit
Dimensions (W x D in mm)	145 x 65, lowprofile bracket
Cooling solution	with fan
Approvals	CE, FCC Class B, EN55022, EN55024, EN60950
Driver certification	Windows XP 32-bit, Windows XP 64-bit, Windows Vista 32-bit, Windows Vista 64-bit, Windows 7 32-bit, Windows 7 64-bit
Mainboard onboard graphic	DISABLED when using graphics card in main graphic slot
	All resolutions dependent on display type 4:3 or 16:9 (additional resolutions possible depending on monitor edid data) Colordepth [bit/pixel]: 32

Resolutions / Display types

Resolutions		Display type:	
		4:3 or 5:4	16:9 or 16:10
640x480, 720x480, 720x576, 800x600	x	x	-
848x480, 960x600	x	-	x
1024x768	x	x	-
1088x612	x	-	x
1152x864	x	x	-
1280x720, 1280x768, 1280x800	x	-	x
1280x960, 1280x1024	x	x	-
1360x768, 1440x900, 1600x900, 1600x1024	x	-	x
1600x1200	x	x	-
1680x1050, 1920x1080, 1920x1200	x	-	x
1920x1440 (only analog)	x	x	-
2048x1536 (only analog)	x	x	-
2560x1440 (only DVI-D and DP)	x	-	x
2560x1600 (only DVI-D and DP)	x	-	x

	NVIDIA GeForce GT420 DisplayPort 1GB FH
Description	PCI Express x16 - graphics controller card
Field of application	DX11 gaming support with midrange performance. Smooth playing up to 1680x1050 resolution possible. 2D and 3D office text and graphics display applications, TV projector, beamer presentation, picture and videorecording and editing for i.e. Internet presentations. Displaying of HDCP encrypted videos in full resolution.
Mainboard interface	PCI Express x16 mechanical
TV Interfaces	HDMI possible via DVI to HDMI converter (optional)
Connectors on graphic-board	1*DVI-I duallink, 1*VGA, 1*DP
Connectors after LFH-splittercable	-
Shipped adapters	-
Possible monitor combinations	VGA, DP, DVI-I => dual monitor support; 2nd VGA possible over the DVI-I interface via DVI to VGA adapter (optional); 2nd DVI via DP to DVI adapter cable (optional)
Dual RAMDAC	each 400MHz
Electrical power consumption	7W - 30Wmax (depending on graphic load)
Technical specification	Local Frame Buffer: 1GB DDR3, mounted on graphics board Graphics processor: 700 MHz Core Frequency Memory Frequency: 800 MHz (=DDR-rate 1600MHz), 128bit memory interface Full DX11 compliant HDCP support (High Bandwidth Digital Content Protection) at all digital connectors
Operating systems	Windows XP 32bit/ 64bit, Windows VISTA 32bit/ 64bit, Windows 7 32bit/ 64bit
Dimensions(W x D in mm)	145 x 65, however bracket is fullsize profile
Cooling solution	with fan
Approvals	CE, FCC Class B, EN55022, EN55024, EN60950
Driver certification	Windows XP 32-bit, Windows XP 64-bit, Windows Vista 32-bit, Windows Vista 64-bit, Windows 7 32-bit, Windows 7 64-bit
Mainboard onboard graphic	DISABLED when using graphics card in main graphic slot
	All resolutions dependent on display type 4:3 or 16:9 (additional resolutions possible depending on monitor edid data) Colordepth [bit/pixel]: 32

		4:3 or 5:4	16:9 or 16:10
640x480, 720x480, 720x576, 800x600	x	x	-
848x480, 960x600	x	-	x
1024x768	x	x	-
1088x612	x	-	x
1152x864	x	x	-
1280x720, 1280x768, 1280x800	x	-	x
1280x960, 1280x1024	x	x	-
1360x768, 1440x900, 1600x900, 1600x1024	x	-	x
1600x1200	x	x	-
1680x1050, 1920x1080, 1920x1200	x	-	x
1920x1440 (only analog)	x	x	-
2048x1536 (only analog)	x	x	-
2560x1440 (only DVI-D and DP)	x	-	x
2560x1600 (only DVI-D and DP)	x	-	x

	NVIDIA GeForce 405 DisplayPort 512MB, low profile (for ESPRIMO C,E,P)
Description	Low Profile PCI Express x16 - graphics controller card
Field of application	2D and 3D office text and graphics display applications, TV projector, beamer presentation, Hardware prepared for picture and videorecording and editing for i.e. Internet presentations. HDTV-Displaying of HDCP encrypted videos in full resolution. The board features a DisplayPort interface and is capable of high resolutions up to 2560x1600.
Mainboard interface	PCI Express x16 mechanical
TV Interfaces	HDMI possible via DVI to HDMI converter (optional)
Connectors on graphic-board	1*DVI-I duallink, 1* DP
Connectors after LFH-splittercable	-
Shipped adapters	1*DVI/VGA converter
Possible monitor combinations	DP, DVI-I => dual monitor support; VGA possible over the DVI-I interface via DVI to VGA adapter (bundled); 2nd DVI via DP to DVI adapter cable (optional)
Dual RAMDAC	each 400MHz
Electrical power consumption	4W - 20Wmax (depending on graphic load)
Technical specification	Local Frame Buffer: 512MB, mounted on graphics board Graphics processor: 520 MHz Core Frequency Memory Frequency: 790 MHz (=DDR-rate 1580), 64bit memory interface Full DX10.1 compliant HDCP support (High Bandwidth Digital Content Protection) at all digital connectors
Operating systems	Windows XP 32bit/ 64bit, Windows VISTA 32bit/ 64bit, Windows 7 32bit/ 64bit
Dimensions(W x D in mm)	178 x 65
Cooling solution	fanless (heatsink)
Approvals	CE, FCC Class B, EN55022, EN55024, EN60950
Driver certification	Windows XP 32-bit, Windows XP 64-bit, Windows Vista 32-bit, Windows Vista 64-bit, Windows 7 32-bit, Windows 7 64-bit
Mainboard onboard graphic	DISABLED when using graphics card in main graphic slot
	All resolutions dependent on display type 4:3 or 16:9 (additional resolutions possible depending on monitor edid data) Colordepth [bit/pixel]: 8/16/32

Resolutions / Display types

Resolutions		Display type:	
		4:3 or 5:4	16:9 or 16:10
640x480, 720x480, 720x576, 800x600	x	x	-
848x480, 960x600	x	-	x
1024x768	x	x	-
1088x612	x	-	x
1152x864	x	x	-
1280x720, 1280x768, 1280x800	x	-	x
1280x960, 1280x1024	x	x	-
1360x768, 1440x900, 1600x900, 1600x1024	x	-	x
1600x1200	x	x	-
1680x1050, 1920x1080, 1920x1200	x	-	x
1920x1440 (only analog)	x	x	-
2048x1536 (only analog)	x	x	-
2560x1440 (only DVI-D and DP)	x	-	x
2560x1600 (only DVI-D and DP)	x	-	x

The Digital Visual Interface (DVI) is a connector designed to maximize the visual quality of digital display devices such as flat panel LCD computer displays and digital projectors.
DVI D transfers only digital signals.

General:
These adapter cards provide an additional digital monitor interface to the standard on board VGA connector (on board graphics controller is still enabled). VGA signals are not supported by these adapter cards.

	Intel	
	DVI Extension Adapter	DVI-D + DisplayPort Extension Adapter
Bus Interface	PCI-E x16	PCI-E x16
Monitor Interface	DVI-D	1x DVI-D, 1x DP [4)]
Target Platform	iG41 / iQ43 / iQ45	iQ43 / iQ45 (DDR3 platform)
Monitor Modes:		
a) Single DVI	x	x [1)]
b) Clone Mode	x [5)]	x [2)]
c) extended Desktop	x [5)]	x [2)]
Resolution [3)]		
640x480	60Hz, 75Hz	60Hz, 75Hz
800x600	60Hz, 75Hz	60Hz, 75Hz
1024x768	60Hz, 75Hz	60Hz, 75Hz
1280x1024	60Hz, 75Hz	60Hz, 75Hz
1440x900	60Hz	60Hz
1600x1200	60Hz	60Hz
1680x1050	60Hz	60Hz
1920x1200	60Hz	60Hz

[1)] Either DVI-D 1 or DVI-D 2 can be enabled

[2)] Only two monitors will be supported simultaneously; either two digital monitors or one digital and one VGA monitor (onboard VGA connector)

[3)] Additional resolutions might be possible, depending on monitor's EDID data

[4)] Change to DVI-D possible via separate DP/DVI adapter cable

[5)] During POST, a picture is only visible on one Monitor

Benchmarks

The data reflects laboratory performance only. The customer configuration may perform differently, depending on the software, components and peripherals connected.

Graphics controller	3DMARK Vantage Performance	3DMark 2011 Performance
Geforce 405 family	1040	n. a.
Geforce GT420 family	2630	624
NVS 300 x16	1030	n. a.
Radeon HD 5450	1320	409
Intel CPU graphics	3DMARK Vantage Performance	3DMark 2011 Performance
Core i5 2500	1030	n. a.
Core i3 2100	1020	n. a.
Core i3 G840	1000	n. a.
Core i3 G620	980	n. a.

Test system:

System Bord	D3062-A12-GS52
Sytem BIOS Version	1.40 (VBIOS 2104)
Graphic Driver Version	PV15.21.10.64.2291_(RC6+disabled)
System Memory	2 x 2 GB
3DMark 11 Testversion	1.00 und 1.0.0.0

Grafics Driver	8.15.10.2310 beta
OS	Windows 7 Professional 64-Bit
Hint	DirectX11 compatible hardware necessary

Contact
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